

# Work Order ID 48485

June 26, 2009 12:44:55 PM



Page 1

Item ID: D2003-017

Accept



Setup Start



Revision ID: ~~B-U/R~~ See ATTACHED wbs

Stop



Item Name: Tube Assembly

Start Date: 15/07/2009 Start Qty: 6.00



Cust Item ID:

Required Date: 03/08/2009 Req'd Qty: 6.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description
--------------------------------	--------------------------

Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
----------------------	----------------	--------------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D2003	Rev U/R

100



Small Fab

Memo

- 1- Cut: 17.0" long as per Dwg D2003
- Material: M2650-6 Heat sleeve
- 2- Form tube as per template D2003-017
- 3- Assemble as per Dwg D2003

110



QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

⇒ So7(a)24

(6x)

0.00

0.00

(6)

f

Memo

**Work Order ID 48485**

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Item ID: D2003-017

Accept



Setup Start



Revision ID: U/R

Stop



Item Name: Tube Assembly

Start Date: 15/07/2009 Start Qty: 6.00



Cust Item ID:

Required Date: 03/08/2009 Req'd Qty: 6.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/  
Work Center IDOperation  
Description

120



Packaging

Packaging

Identify as per dwg & Stock Location: 192Set Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

0.00

0.00

130



QC

Quality Control

QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

*09/07/28*

*MF 09-07-28*

## Picklist Print

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Page 1

Work Order ID: 48485



**Parent Item:** D2003-017RevU/R



**Parent Item Name:** Tube Assembly

**Comments:**

**Start Date:** 15/07/2009

**Required Date:** 03/08/2009

**Start Qty:** 6.00

**Required Qty:** 6.00

Date: Thursday, 11/06/2009 11:54:36 AM  
 User: Julie Dawson

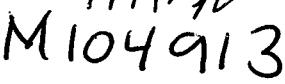
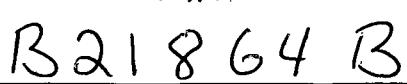
## Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services		Drawing Name	: TUBE ASSEMBLY	
Job Number	: 48485		Part Number	: D2003017	
Estimate Number	: 11917		Drawing Number	: D2003 UNDER REVIEW	
P.O. Number	:		Project Number	: N/A	
This Issue	: 11/06/2009 S.O. No. :		Drawing Revision	: B	
Prsht Rev.	: NC		Material	:	
First Issue	: / / Type : SMALL /MED FAB		Due Date	: 19/06/2009 Qty: 6 Um: Each	
Previous Run	: 37909				
Written By	:				
Checked & Approved By	: JU009.dcl.11				
Comment	: Est B00.01.12 Re-format EC				

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
1.0	M6061T6T0375W035	6061-T6 RD Tube .375 x.035W
		 
		<p>Comment: Qty.: 1.4219 f(s)/Unit Total : 8.5315 f(s)        Cut as per template D2003-017 (16.25" long) <del>M104913</del>         Material: 3/8" AE x 0.035" wall 6061-T6 tubing        Batch: <del>M104913</del> m-h 09/06/24        Cut: 17.0" long as per Dwg D2003        Material: M2650-6 Heat sleeve        Batch: </p> <p>(PW)</p>
2.0	M26506	Firesleeve-crkl .375IDia
		 
		<p>Comment: Qty.: 1.4200 f(s)/Unit Total : 8.5200 f(s)        Firesleeve-crkl .375IDia</p> <p>M112195 M10916723</p>
3.0	D2182045	Heat Shrink 4.5" Long
		 
		<p>Comment: Qty.: 1.0000 Each(s)/Unit Total : 6.0000 Each(s)        Pick:         Qty Part Number Description Batch        1 D2182-045 Heat shrink </p>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D2003-017 PAR #: N/A Fault Category: Sm Fab NCR: Yes No DQA: No Date: 09-07-29  
 Resolution: Scrap Disposition: Scrap QA: N/C Closed: No Date: 05-JB-20

WORK ORDER NON-CONFORMANCE (NCR)								
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
09-06-29	1.0	3/8 x 0.375 304 SS. was cut & pulled for the parts. 4 parts scrap of 2 sections of straight material removed. Did not double check if pulled mat'l P.C. L.O.A.	J QSIU2	- Scrap & destroy Qty 4 - Re-indentify & stock 2 mtrs at 16" long. - Ensure to double check material prior to use.	M.L 09/06/29 M.L 09/06/29	S QSIU2	/QSIU2	09-06-29

NOTE: Date & initial all entries

Date: Thursday, 11/06/2009 11:54:36 AM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: TUBE ASSEMBLY

Job Number: 48485

Part Number: D2003017

Job Number:



Seq. #: Machine Or Operation:

Description :

4.0 MS208196D

Sleeve



Comment: Qty.: 2.0000 Each(s)/Unit Total : 12.0000 Each(s)

Sleeve

Pick:

Qty Part Number Description Batch  
2 MS20819-6D Sleeve \_\_\_\_\_

M112082 m-h 09/06/24

5.0 AN8186D

Nut



Comment: Qty.: 2.0000 Each(s)/Unit Total : 12.0000 Each(s)

Nut

Pick:

Qty Part Number Description Batch  
2 AN818-6D Nut \_\_\_\_\_

M112082 m-h 09/06/24

6.0 SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



(6X)

Comment: SMALL & MEDIUM FAB RESOURCE 1

Form tube as per template D2003-017

Assemble as per Dwg D2003

m-h 09/07/24

7.0 QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5/07/24 (6)

8.0 ✓ PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: \_\_\_\_\_

9.0 ✓ QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Job Completion ✓



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**DART**



DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED	APPROVED	DRAWING NO. D2003	
DATE		TITLE 206 CABIN HEATER TUBE ASSEMBLIES NTS	
99.06.08		SCALE	
A	90.04.09	NEW ISSUE	
B	99.06.08	UPDATE PER TEMPLATES; ADD P/N'S; 0.025 TUBING NOW 0.035 (TSR1049)	

**RELEASED**  
49.06.08 KC

**UNDER REVIEW**

CL.08.21 CB Some flat  
lengths wrong

P/N	TEMPLATE	HEATSLEEVE LENGTH <sup>1</sup>	CUT LENGTH OF TUBE <sup>2</sup>	MS20819-8J SLEEVE	AN818-8J NUT	MS20819-8D SLEEVE	AN818-8D NUT	MS20819-6D SLEEVE	AN818-6D NUT	DESC.	MATERIAL <sup>4&amp;7</sup>	VENDOR OR SPEC
D2003-001	T2003-001	5.2	6.00					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-003	T2003-003	7.3	8.12					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-005	T2003-005	9.8	10.62					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-007	T2003-007	20.0	19.63					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-009	T2003-009	12.38	12.44					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-011	T2003-011	33.31	32.38					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-013	T2003-013	12.7	13.54					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-015	T2003-015	17.2	18.00					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-017	T2003-017	17.0	16.25					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-019	T2003-019	9.8	10.62		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-021	T2003-021	NA	2.25		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-023	T2003-023	4.5	5.33		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-025	T2003-025	9.8	10.60		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-027	T2003-027	7.25	7.38		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-029	T2003-029	17.2	18.00		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-700/6
D2003-031	T2003-031	14.6	15.38	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-033	T2003-033	29.75	29.62	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-035	T2003-035	24.7	27.00	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-037	T2003-037	24.81	23.38	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-039	T2003-039	34.0	34.00	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-041	T2003-041	6.0	5.88	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-043	T2003-043	11.7	10.75	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-045	T2003-045	3.50	2.44	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-047	T2003-047	5.56	5.56	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-049	T2003-049	33.2	34.00	2	2					TUBE ASS'Y	CRES 0.500 OD x 0.035 W	AISI 304
D2003-077	T2003-077	N/A	6.25					1	1	JET	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-101	T2003-101	13.25	13.13					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-103	T2003-103	12.38	12.00					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-105	T2003-105	10.75	10.60					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-107	T2003-107	12.75	12.25					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-600/6
D2003-109	T2003-109	8.25	8.125		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-600/6
D2003-111	T2003-111	4.75	4.625		2	2				TUBE ASS'Y	6061-T6 0.500 OD x 0.035 W	WW-T-600/6
D2003-116	T2003-116	4.0								HEATSLEEVE	M2650-20 CRINKLE-SOFT	STRATOFLEX
D2003-120	T2003-120	4.0								HEATSLEEVE	M2650-16 CRINKLE-SOFT	STRATOFLEX
D2003-14	T2003-14	4.0								HEATSLEEVE	M2650-14 CRINKLE-SOFT	STRATOFLEX
D2003-16	T2003-16	4.0								HEATSLEEVE	M2650-16 CRINKLE-SOFT	STRATOFLEX
D2003-205	T2003-205	9.75	9.60					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6
D2003-207	T2003-207	3.75	3.75					2	2	TUBE ASS'Y	6061-T6 0.375 OD x 0.035 W	WW-T-700/6

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WORK ORDER  
NO. HX104

**DART**

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D2003 REV. B SHEET 2 OF 2
DATE	TITLE	SCALE
99.06.08	206 CABIN HEATER TUBE ASSEMBLIES NTS	

**RELEASED**

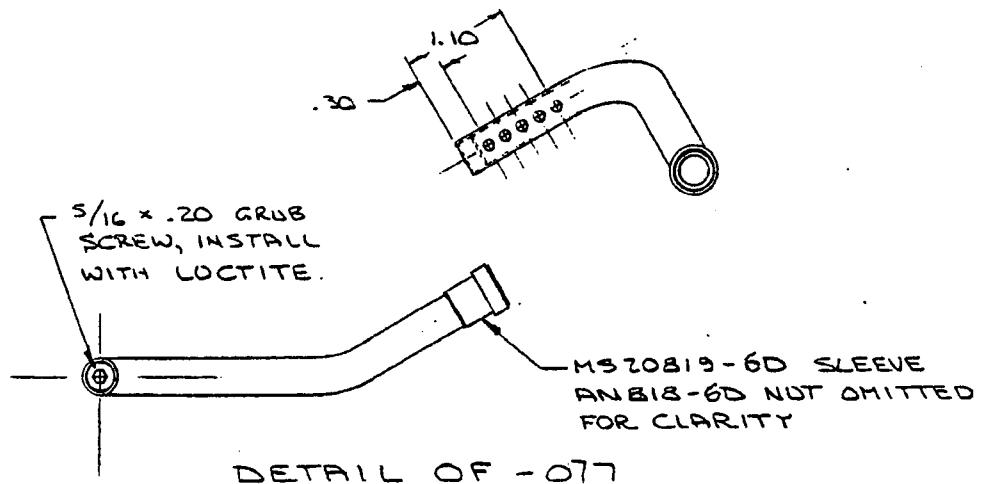
99.06.09 KE

**UNDER REVIEW**

06.08.21 CB

Some flat lengths  
~~were~~ wrong**Notes:**

- (1) USE STRATOFLEX M2650-6 CRINKLE-SOFT HEATSLEEVE.
- (2) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATES.
- (3) TUBES TO BE FLARED 30° TO MATE WITH FITTINGS MADE TO MS33514.
- (4) ENSURE SEAMLESS TUBING IS USED.
- (5) INSTALL HEATSLEEVE OVER ALL TUBES WITH A DESIGNATED LENGTH OF HEATSLEEVE PER THE PARTS LIST.
- (6) 5052 (WW-T-700/4) TUBING MAY BE SUBSTITUTED WHEN 6061 TUBING IS NOT AVAILABLE.
- (7) 0.049 WALL THICKNESS CRES TUBING MAY BE SUBSTITUTED WHEN 0.035 IS NOT AVAILABLE.
- (8) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.



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